

CLAIMS

What is claimed is:

- 1 1. A self-contained, portable heat control device comprising:
2 a flexible enclosure configured to accommodate an internal DC power supply;
3 a cooling surface;
4 a heating surface thermally insulated from the cooling surface; and
5 a heat transfer unit configured and disposed to cool the cooling surface and heat
6 the heating surface, the heat transfer unit being accommodated in or on the flexible
7 enclosure.
- 1 2. The self-contained, portable heat control device of claim 1, wherein the heat transfer unit
2 comprises a Peltier-effect unit.
- 1 3. The self-contained, portable heat control device of claim 2, wherein the self-contained,
2 portable heat control device is attached to a wearable article, and wherein the flexible
3 enclosure is sufficiently flexible to conform to a general shape of a portion of a body
4 corresponding to the wearable article.
- 1 4. The self-contained, portable heat control device of claim 3, wherein the self-contained,
2 portable heat control device is incorporated into the wearable article.
- 1 5. The self-contained, portable heat control device of claim 3, wherein the wearable article
2 comprises head wear.
- 1 6. The self-contained, portable heat control device of claim 5, wherein the wearable article
2 comprises a baseball cap.

- 1 7. The self-contained, portable heat control device of claim 5, wherein the wearable article
2 comprises a helmet.
- 1 8. The self-contained, portable heat control device of claim 2, wherein the internal DC
2 power supply comprises one or more fuel cells.
- 1 9. The self-contained, portable heat control device of claim 2, wherein the internal DC
2 power supply comprises one or more rechargeable batteries.
- 1 10. The self-contained, portable heat control device of claim 1, wherein the internal DC
2 power supply comprises one or more disposable batteries.
- 1 11. A personal heat control device comprising:
2 a housing configured to accommodate an internal DC power supply;
3 a first outwardly exposed surface configured to be placed in direct or indirect
4 contact with a person's skin;
5 a second surface thermally insulated from the first outwardly exposed surface;
6 and
7 a heat transfer unit coupled to the first outwardly exposed surface and the second
8 surface, the heat transfer unit configured to receive electrical power from the internal DC
9 power supply, the heat transfer unit causing one of the first outwardly exposed surface or
10 the second surface to absorb heat and causing the other to give off heat, the heat transfer
11 unit being accommodated in or on the housing.
- 1 12. The personal heat control device of claim 11, wherein the heat transfer unit comprises a
2 Peltier-effect unit.
- 1 13. The personal heat control device of claim 12, wherein the second surface is outwardly
2 exposed and configured to be placed in direct or indirect contact with a person's skin.

- 1 14. The personal heat control device of claim 12, wherein the personal heat control device is
2 attached to a wearable article.
- 1 15. The personal heat control device of claim 12, attached to a portable consumer device.
- 1 16. The personal heat control device of claim 15, integrated with a mobile phone.
- 1 17. The personal heat control device of claim 16, integrated with a wrist watch.
- 1 18. The personal heat control device of claim 14, wherein the housing comprises a flexible
2 and soft-faced enclosure.
- 1 19. A personal heat control device comprising:
2 a cooling surface means for absorbing heat and for being placed in direct or
3 indirect contact with a person's skin;
4 a heating surface means, thermally insulated from the cooling surface means, for
5 dissipating heat absorbed by the cooling surface;
6 a heat transfer means, coupled to the cooling surface means and the heating
7 surface means, for converting electricity into heat absorption through the cooling surface
8 means and heat release through the heating surface means; and
9 a housing means for accommodating the heat transfer unit and an internal DC
10 power supply means, the internal DC power supply means for providing electrical power
11 to the heat transfer means.
- 1 20. The personal heat control device of claim 19, wherein the housing means is connected to
2 attachment means for attachment of the device to a part of the person's body with one of
3 the cooling surface or the heating surface in direct or indirect contact with the person's
4 skin.

- 1 21. The personal heat control device of claim 19, further comprising a switch means for
2 selective connection of the heat transfer means to the internal DC power supply means.